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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,248	06/09/2006	Sung Ho Kim	3449-0645PUS1	2814

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EXAMINER

CALEY, MICHAEL H

ART UNIT	PAPER NUMBER
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2871

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/582,248	Applicant(s) KIM ET AL.	
	Examiner Michael H. Caley	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/9/06j 8/15/06j 2/26/08j 9/3/08j 5/13/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested:

Liquid crystal display device having front light and micro lens sheet and mobile station having the same

Claim Objections

Claims 10 and 17 are objected to because of the following informalities:

"the black matrix" recited in claims 10 and 17 lacks antecedent basis. It is suggested that "the black matrix" be amended to recite "a black matrix". Claim 10 may alternatively be amended to be dependent on claim 7 which recites a black matrix.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Claims 1-3, 11, 13, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu (U.S. Patent Application Publication No. 2005/0001796).

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Regarding claim 1, Liu discloses a liquid crystal display device having:

a transflective liquid crystal display panel (Figure 14 elements 120, 12022, 12024);

a front light unit (112, 114) for supplying a light for displaying an image; and

a micro lens sheet (Figures 8 or 9; Paragraphs [0031], [0032]), and condensing the incident light on the transflective liquid crystal panel (Paragraph [0031]).

Regarding claim 2, Liu discloses the image as displayed on both front and rear of the transflective liquid crystal by first and second display modes, respectively, the first display mode allowing the image to be displayed in front of the transflective liquid crystal panel using the light reflected by a reflective region of the transflective liquid crystal panel (112A), the second display mode allowing the image to be displayed in rear of the transflective liquid crystal panel using the light transmitted through a transmissive region of the transflective liquid crystal (112B; Paragraph [0032]).

Regarding claim 3, Liu discloses the front light unit as including a light source on a side surface thereof (112).

Regarding claim 11, Liu discloses the micro lens sheet as formed in a shape from the proposed list (Figures 8 and 9).

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Regarding claim 13, Liu discloses the micro lens sheet as formed such that a lens shape is formed at a location corresponding to each unit pixel of the transfective liquid crystal panel (Figures 8 and 9)

Regarding claim 14, Liu discloses the micro lens sheet as formed in a shape from the proposed list (Figures 8 and 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu.

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Liu fails to explicitly disclose the type of light source on the side surface of the front light. The examiner takes official notice that each of the proposed types of light sources are conventional and well known implementations of a light source on a side surface of a front light.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the light source as any of the proposed types of light sources. One would have been motivated to implement the light source from any of the proposed types to benefit from the known advantages of the particular implementation including brightness, power efficiency, cost, etc.

Claims 7-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Ha et al. (U.S. Patent Application Publication No. 2002/0105604 “Ha”).

Regarding claims 7-9 and 12, Liu fails to explicitly disclose the elements of a transflective liquid crystal panel.

Ha, however, teaches the first substrate (Figure 7 element 111) including an array device (Figure 1) having a thin film transistor (abstract; Figure 7), a transmissive electrode (119a) formed on the array device for displaying the image by transmitting the incident light and a reflective plate (166a) for displaying the image by reflecting the incident light); a second substrate (Figure 1 element 15) disposed on a position which is opposite to the first substrate, wherein the second substrate includes a color filter (17) formed on a location corresponding to a region where the transmissive electrode of the first substrate is formed (Figures 1 and 2), and a black matrix (16) formed between the color filters; and a liquid crystal panel (Figure 2 element 23) filled between the first substrate and the second substrate; a plurality of gate lines formed in

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a first direction (25); a plurality of data lines formed perpendicular to the gate lines (27); a pixel region defined by the gate line and the data line (P); and a thin film transistor (T) formed at a region where the gate line and the data line are intersected with each other, and further comprising an insulating layer (Figure 7 element 169) formed on the transmissive electrode, and common electrode (Figure 1 element 13) under the color filter.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the various elements conventional to a transfective display as taught by Ha in the display device disclosed by Liu. One would have been motivated to incorporate such elements to benefit from a display capable of displaying in reflective and transmissive modes and in color according to conventional means.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Ha and Kurematsu et al. (U.S. Patent No. 5,101,279 “Kurematsu”).

Liu and Ha fail to disclose the micro lens sheet as condensing light incident from the light source on an opening of the transfective liquid crystal panel and the opening as a region where the black matrix of the transfective liquid crystal panel is not formed. Kurematsu, however, teaches such micro lenses as formed to converge light such that it directed away from the black matrix and other light blocking elements (Column 6 lines 18-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the micro lens to converge light on an opening in a region where the black matrix is not formed. One would have been motivated to form the micro lens as proposed to

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benefit from an improved aperture ratio (light usage efficiency) according to the teachings of Kurematsu (Column 6 lines 27-30).

Claim 15, 16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Shimamura (U.S. Patent Application Publication No. 2003/0125008).

Regarding claims 15 and 18-20, Liu discloses all of the proposed limitations except for a communication unit and a control unit as proposed. Shimamura, however, teaches an analogous cell phone device as having a communication unit (Figure 11 element 7) for communicating with an exterior and a control unit (3) for controlling the communication unit and the liquid crystal display device (9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the mobile communication terminal disclosed by Liu to have the proposed communication unit and control unit. One would have been motivated to implement the mobile device with the proposed elements to enable controlled display and communication according to conventional means.

Regarding claim 16, Liu discloses the proposed first and second display modes (Paragraph [0008], Figures 4 and 14).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Ha and Kurematsu and in further view of Shimamura.

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Liu and Ha fail to disclose the micro lens sheet as condensing light incident from the light source on an opening of the transfective liquid crystal panel and the opening as a region where the black matrix of the transfective liquid crystal panel is not formed. Kurematsu, however, teaches such micro lenses as formed to converge light such that it directed away from the black matrix and other light blocking elements (Column 6 lines 18-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the micro lens to converge light on an opening in a region where the black matrix is not formed. One would have been motivated to form the micro lens as proposed to benefit from an improved aperture ratio (light usage efficiency) according to the teachings of Kurematsu (Column 6 lines 27-30).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571)272-2286. The examiner can normally be reached on M-F 6:00 a.m - 2:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael H. Caley/
Primary Examiner, Art Unit 2871